the eyes were closed. It first showed strong circus movements to the right and had always to be fed. Its development throughout was retarded, and although at first it was playful, it later became rather sluggish. When the brain was examined it showed the left hemisphere, thalamus, oculomotor nidus, and associated parts completely atrophied. The other hemisphere was, as usual in such cases, more than the normal size and extended over the middle line. The optic tract, the oculomotor root and the pyramid on the left side had all atrophied, while remaining normal on the right side. The corresponding corpus quadrigeminum and the optic nerve had diminished in size in accordance with these atrophies. On sections through the region of the pons, the mesial and intermediate portions of the lemniscus, the posterior longitudinal fasciculus, and a crossed bundle of large fibers near the raphe have atrophied to various degrees. Passing caudad, the atrophies become less and less marked. When compared with certain results obtained by Forel and v. Monakow, the *plus* of atrophy may be attributed to the destruction of the thalamus, and thus the course of certain tegmental fiber systems is established.

*Comparison of the Convolutions of the Seals and Walrus with those of the Carnivora, and of Apes and Man.* Sir WILLIAM TURNER. Jour. of Anat. and Phys. Vol. XXII, 1888, pp. 554–581.

Sir William Turner, in his report on the seals collected during the voyage of the Challenger (*Zool. Chall. Exp.* Part LXVIII, 1888), describes the brain of the elephant seal (*Macrorhinus leoninus*) and of the walrus (*Trichechus rosmarus*). In connection with this description, he compares the cortical areas of the cerebrum in these animals with those found in the Carnivora proper, and in apes and man. After referring to the accounts given by Lauret, Broca, Owen, and Krueg, he describes the fissures and convolutions of *Phoca vitulina*. On the outer surface of the hemisphere in this mammal is a distinct fissure of Sylvius, with its Sylvian convolution, the anterior limb of which is narrower than the posterior, and at its commencement concealed within the fissure of Sylvius. In the walrus, and also in the eared seal, bear, otter, coati, badger, and ratel, this narrowing and depression of this limb of the Sylvian convolution exists. The convolutions and sulci of *Macrorhinus* correspond in essential points with those of *Phoca*. From an examination of the brains of *Trichechus*, *Phoca*, and *Macrorhinus*, Turner is inclined to consider these animals as approximating, in the arrangement of the convolutions of the outer face of the hemisphere, to those carnivora which possess four tiers of convolutions in relation to the fissure of Sylvius, this arrangement being present in the dog, jackal, fox, and wolf. He found that the area named by Mivart the ursine lozenge was rudimentary or not definitely defined in the seals and walrus. Turner next compared the convolutions on the mesial and tentorial surfaces of the hemisphere in the Pinnipedia, with the corresponding ones in the brains of several of the Canidae and Felidae. The crucial fissure, he found, varied materially in its position in the Carnivora and Pinnipedia. In the seals and walrus it was so far forward as not to be seen on the dorsum of the hemispheres, but only at the anterior end of the cerebrum. In the cat and tiger it was visible in about the anterior fourth of the dorsum of the hemispheres; in the

dog, weasel, ferret, and coati, at the juncture of the middle and anterior third ; in the badger, polar bear, and ratel it was further back, just in front of a line dividing the dorsum of the hemispheres into an anterior and posterior half. In comparing the cerebrum of the Carnivora and Pinnipedia with that of man and apes, Turner finds a morphological correspondence between certain of the convolutions and fissures. In the walrus and seals the Island of Reil, he says, may find its representative in the anterior limb of the Sylvian convolution, which is more or less hidden within the fissure of Sylvius. If this indication be true, he believes that the Island of Reil, which in the brain of the ape, and more so in man, is entirely concealed within the Sylvian fissure, is either the homologue of the Sylvian convolution of the carnivorous brain, or that the Sylvian convolution in the Carnivora potentially represents both that convolution and a rudimentary insula. He thinks there can be no doubt that the anterior and upper part of the splenial fissure in the brain of the Carnivora and Pinnipedia corresponds with the fissure which is known as calloso-marginal in man and apes. In several of the Canidae the splenial fissure was continuous with the crucial fissure, but in the cat, tiger, coati, and polar bear they were not continuous ; whilst in *Phoca vitulina* the two fissures were continuous in one hemisphere, but not in the other. From the anatomical data and experimental evidence Turner thinks it may be assumed that the fissure of Rolando is homologous with the coronal fissure in the carnivorous brain. He says in conclusion : "From the point of view of the hypothesis of evolution there would be no reason to think that the smooth-brained lower apes had originated out of the Carnivora, at least after the cortex of the cerebrum in this latter order had begun to assume a convoluted arrangement. If they had been derived from a carnivorous animal with a convoluted brain, then in all likelihood the convoluted character of the cerebrum would not have disappeared in the process of evolution. If the higher apes have been derived by descent from the lower apes, then the hemispheres in the former, with their complex arrangement of fissures and convolutions, have been evolved from a smooth-brained stock, and not from an animal with such an elaborate arrangement of convolutions as is possessed by either a dog or a seal. Hence, the acceptance of this hypothesis is not inconsistent with the fact that the convolutions of the brain in the apes assume from the first their own methods of arrangement, and not necessarily that of the orders of mammals with convoluted brains which are lower in the series. Beyond, therefore, a certain general correspondence in the arrangement of those fundamental parts of the cortex which serve a similar purpose in these various orders, one does not find it possible to determine the presence of convolutions arranged in a precisely corresponding manner in the brains of the Carnivora and Pinnipedia on the one hand, and of man and apes on the other." F. T.

*The Morphology of the Vagus Nerve.* THOMAS W. SHORE. Jour. of Anat. and Phys. Vol. XXII, 1888, pp. 372–390.

After giving the anatomy and development of the vagus nerve in Petromyzon, Elasmobranchs, the frog, Amniota, and the chick, and after some discussion of the morphological value of its various portions in these types, the author concludes that there is evidence to show, first, "that the vagus is a 'compound nerve,' but not in the